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ABSTRACT

The use of communications technology as an influential educational tool to meet such pressing concerns as increased academic requirements and shrinking financial resources will be tested in one of the most geographically remote areas of rural New York State. The pilot laboratory will consist of an 18-member school district consortium that is currently part of the Delaware-Chenango-Madison-Otsego Board of Cooperative Educational Services. Building on the pioneering efforts of other innovative rural schools throughout the country that have successfully integrated a new wave of communications technology into the classroom setting, the Delaware-Chenango program will combine a federal-state-local-private sector partnership critical to the strategic development of a comprehensive communications network. A state-level task force will be created to provide the standard for a self-sustaining network, including on-going development of a state-local educational telecommunications capability, as well as identification and encouragement of research, development, and strategies to support implementation of cost-effective educational innovations in rural New York State. Collaborating in a microcosm of rural America, the pilot program will provide its state-level co-sponsors, the New York State Education Department and the New York State Legislative Commission on Rural Resources, and a private sector sponsor--AT&T Communications, Inc.--with innovations for replication in other rural areas. (Author/BRR)

ED249003

State of New York

PILOT PROGRAM FOR ASSESSMENT AND IMPLEMENTATION OF EDUCATIONAL TELECOMMUNICATIONS APPLICATIONS AS AN ALTERNATIVE TO STRENGTHEN SMALL RURAL SCHOOLS

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Educational Telecommunications in Small Rural Schools

Co-sponsors:

New York State Education Department
(Representing The State Board of Regents)

New York State Legislative Commission on Rural Resources
(Representing the State Legislature)

Delaware-Chenango-Madison-Otsego Board of Cooperative Educational Services
(Representing Participating Schools in the Supervisory District)

AT&T Communications, Inc.
(Representing AT&T and Its Affiliates)

July 1, 1984

Table of Contents

	Page
Executive Summary	v
I. PROGRAM PURPOSE	1
II. THE NEED TO STRENGTHEN RURAL EDUCATION	1
A. Elementary and Secondary Education in Rural America	1
B. Elementary and Secondary Education in Rural New York State	3
III. DEMONSTRATED POTENTIAL OF MODERN TELECOMMUNICATIONS TECHNOLOGY TO STRENGTHEN RURAL EDUCATION	6
IV. THE THREE PILOT PROGRAM COUNTIES: DELAWARE, CHENANGO AND OTSEGO	7
A. Socioeconomic Characteristics	7
B. State Program Sponsors: The New York State Department of Education and Legislative Commission on Rural Resources	8
C. Private Sector Program Sponsor: AT&T Communications, Inc.	9
D. Local Program Sponsor: Delaware-Chenango-Madison-Otsego Board of Cooperative Educational Services	9
V. OBJECTIVES OF THE STATE-LOCAL EDUCATIONAL TELECOMMUNICATIONS PILOT PROGRAM	11
A. Short-Term Objectives (One-Two Years)	11
B. Longer Term Objectives (Three-Five Years)	12
VI. PLANNING ACTIVITIES AND METHODOLOGIES DURING THE PROGRAM PERIOD	13
A. State-Level Task Force on Rural Education Telecommunications	13
B. Local Agency Coordinating Council	14
C. Activities and Methodologies	15
VII. CRITERIA FOR THE ASSESSMENT OF EDUCATIONAL ALTERNATIVES FOR RURAL SCHOOLS	18
VIII. PRODUCTS AND OUTCOMES	19
IX. BUDGET: OBJECT AND SOURCE OF FUNDS	23
X. BUDGET NARRATIVE (AND EXPECTED FUNDING LEVELS)	24
ATTACHMENT A: Inventory of Students and Faculty, 1983-84, Delaware-Chenango BOCES	29
ATTACHMENT B: BOCES Districts and Occupational Education Centers, New York State, 1984	30

Executive Summary

The use of communications technology as an influential educational tool to meet such pressing concerns as increased academic requirements and shrinking financial resources will be tested in one of the most geographically remote areas of rural New York State. The pilot laboratory will consist of an eighteen-member school district consortium that is currently part of the Delaware-Chenango-Madison-Otsego Board of Cooperative Educational Services (BOCES). Building on the pioneering efforts of other innovative rural schools throughout the country that have successfully integrated a new wave of communications technology into the classroom setting, the Delaware-Chenango program will combine a federal-state-local-private sector partnership critical to the strategic development of a comprehensive communications network.

A State-level Task Force will be created to provide the standard for a self-sustaining network, including the on-going development of a state-local educational telecommunications capability. The Task Force will also identify and encourage research, development, and strategies to support the implementation of cost-effective educational innovations in rural areas throughout New York State.

As a microcosm of rural education found in New York as well as in rural America, the pilot program will provide its state-level co-sponsors, the New York State Education Department and the New York State Legislative Commission on Rural Resources, and a private sector sponsor — AT&T Communications, Inc. — with innovations for replication in other rural areas of the State.

At the elementary and secondary levels, rural schools are important rallying points for community activity as well as repositories for social involvement and cultural enrichment. In addition, the informal nature of education in rural schools encourages widespread participation in the learning process. Because rural schools often serve as sources of community pride and symbols of local autonomy, many rural New Yorkers remain steadfast in their opposition to school district consolidation.

Yet small rural schools are severely constrained by the impact of time and distance, which causes many of their students to spend hours each day on school buses. In March 1984, the New York State Board of Regents, the State's highest educational governing body, approved a revised version of a statewide *Action Plan to Improve Elementary and Secondary Education in New York State*, a far-reaching set of proposals aimed at strengthening education in the State. Although the plan will undoubtedly improve teaching and learning in classrooms throughout the State, it will render the attainment of a Regents diploma by students in many rural schools virtually impossible. Thus, practical, comprehensive, cost-effective alternatives need to be devised for rural schools to enhance the quality of educational instruction while maintaining

the school as a focal point of community life.

For these reasons, the pilot program will seek to resolve a central question: *can state-of-the-art educational communications technology be used to free "necessarily small" rural school districts from their most pressing handicaps* — geographic isolation and size-limited resources —without sacrificing their strengths in order to overcome their weaknesses?

During the first two years of the pilot program, the various applications of electronic technology will be tested and developed as a means of providing school and community constituents with educational opportunities comparable to those in metropolitan areas. This technology will be assessed in light of such other educational alternatives as school district consolidation and the hiring of additional staff. In addition, the pilot program will lay the groundwork for future applications of a telecommunications network, such as the electronic linkage of rural schools with hospitals,nursing homes, senior citizen centers, human service agencies, colleges and universities. A specific objective of the pilot program will be to elevate the awareness of educators, administators, business, and political decisionmakers at state and local levels to the potential of interactive telecommunications in rural areas.

A Local Agency Coordinating Council (LAC) with a group of working subcommittees will promote school-community interests in educational telecommunications. The Council (LAC) will serve as a facilitator in the identification, research, and development of strategies to achieve short- and long-term program objectives. Following the development of a plan by the LAC to implement a comprehensive laboratory program in the study region, data will be collected during the spring of 1985 on service delivery, program characteristics, course modification, instructional environment, and psychological/motivational factors. The implementation plan will be expanded by August 1985 to include other school districts and program applications. An interim project evaluation report will be issued by the beginning of the 1986-87 school year. A community education planning prospectus will present feasible alternatives for increased community-school interaction through the use of educational telecommunications.

One of the most salient features of the pilot program is the organizations that will design it. In keeping with the spirit of the recent statewide trend toward the strengthening of intergovernmental public-private sector partnerships, the program will receive financial assistance, technical expertise, and individual perspectives from the New York State Education Department, Legislative Commission on Rural Resources, Delaware-Chenango BOCES, eighteen local school districts, AT&T Communications, Inc., and a host of community representatives and human service agencies. The pilot program will add a unique dimension to the design of working partnerships among a variety of actors and entities intent on improving the overall quality of life in rural New York.

Prospectus

STATE OF NEW YORK
PILOT PROGRAM
For Assessment and Implementation of Educational Telecommunications Applications as an Alternative to Strengthen Small Rural Schools

I. PROGRAM PURPOSE

It is the intent of this undertaking to seek program grant assistance to obtain answers to important questions about the use of telecommunications to strengthen small rural schools. The discussion presented in the subsequent sections of this prospectus addresses the potential for answering these questions through the development of a pilot regional laboratory for testing the application of community-based telecommunications technology in the heart of rural New York State. A specific objective of the pilot program will be to elevate the awareness of educators, administrators, business, and political decisionmakers at state and local levels to the potential of interactive telecommunications.

As a microcosm of education in rural New York as well as across rural America, the study region will provide the needed laboratory to develop and measure ways in which communications technology can strengthen rural education opportunities more appropriately than alternatives such as school consolidation.

II. THE NEED TO STENGTHEN RURAL EDUCATION

A. Elementary and Secondary Education in Rural America

The quality of education at the elementary and secondary school levels is vital to the future commercial, industrial, cultural, and social development of rural America and the fifty million constituents it serves. Quality health care, agriculture, and economic development strategies, for example, hinge upon the ability of an outstanding and integrated educational system to bridge the gap between time and distance across vast plains and remote mountainous areas. This proposal details the need for a pilot program in rural New York that examines the potential role a rapidly expanding communications technology can have on the delivery of educational services to a highly diverse population of rural Americans.

Educational institutions have been a dominant force in rural America's overall development patterns. Across the land, schools at the K-12 level have been a focal point of community life. Many parents have strongly supported the positive educational climate found in the small rural elementary school, where education is more humane.

Dr. Jerry L. Fletcher stated in *Applications of Electronic Technologies to Rural Education*, a study prepared for a 1980 National Institute of Eduction *Workshop on Telecommunications in the Service of Rural Education*, that more time is spent on-task by educators who teach in small rural settings. According to Dr. Fletcher, there are generally higher incidences of personal contact between teachers and students in rural classrooms when compared to larger, metropolitan school systems. In addition, serious detriments to educational responsiveness, such as violence, vandalism, and drug use decrease when education is conducted in smaller units. Many rural Americans, therefore, have the strong desire to maintain the familiar, community-oriented flavor found in small rural schools. Indeed, people in metropolitan areas hold the same ideal for their schools. The movement toward consolidation and centralization that was prevalent everywhere during the past three decades is now being seriously questioned by many management experts also.

Yet, despite the existence of these positive elements, rural school districts throughout America remain severely handicapped in their efforts to overcome a myriad of problems caused by a brave new world of increasingly rapid socioeconomic and technical change. The remoteness, size-limited resouces, and geographic dispersion of people and institutions exacerbates the problem.

Reluctant to compromise their strengths in order to resolve these weaknesses, small rural school districts additionally are burdened by declining enrollments, shrinking tax bases and fiscal resources, and limited program offerings, personnel, and access to cultural resources. The result is increased economic pressure to share and consolidate small, usually remote, community-based rural schools, a move which many citizens oppose.

In late August 1983, the uncertainty which continues to threaten the very viability of elementary and secondary institutions in rural America prompted T.H. Bell, Secretary of the United States Department of Education, to prepare a *Rural Education and Rural Family Education Policy for the 1980's*. The policy statement, recognizing the unique and valuable contributions made to American society by rural education, sought to strengthen the nation's commitment to provide programs that address the unique educational needs of rural and small town youth and adults. In addition, it attempted to provide the basic tools required for rural Americans to enter and remain competitive in an increasingly complex and dynamic workforce. The policy states, "*Rural education shall receive an equitable share of the information, services, assistance, and funds available from and through the Department of Education and its programs.*" This commitment to rural education has provided much-needed reassurance to state policymakers, rural citizens, and educators that the special strengths and needs of rural community-based schools will be given appropriate consideration in the formulation of future educational policies and programs.

B. Elementary and Secondary Education in Rural New York State

The educational climate found in classrooms throughout rural New York State bears a striking resemblance to the larger educational picture of rural America. According to the New York State Legislative Commission on Rural Resources, a state government task force designed to help public policy become more responsive to rural needs and concerns, the rural school is an important rallying point for community activity. The Commission's preliminary report on *Elementary, Secondary, and Higher Education in Rural New York* issued in March 1984, defines the small rural school as a "repository for social activities and cultural enrichment." In addition, the informal nature of education in rural schools encourages student participation in the learning process. Because rural schools often serve as sources of community pride and symbols of local autonomy, many rural New Yorkers remain steadfast in their opposition to school district consolidation in order to overcome their resource limitations.

What actually constitutes a "rural" or "small" school district? A "rural" school district is generally defined as one that has twenty-five or fewer students per square mile. An accepted definition for a "small" school district is one whose enrollment at the K-12 level does not exceed 1,500 pupils. Of the 737 public school districts in New York State approximately 400 fit either of these definitions.

Just as the strengths of elementary and secondary education in rural New York mirror those found across the United States, the inherent shortcomings of rural education in New York State parallel those of the nation as well. As the Commission on Rural Resources states in its preliminary report, despite evidence of recent population influxes to many of New York's rural counties, public school enrollment in New York State has continued to decline. However, enrollments in rural counties have not declined as rapidly as in metropolitan counties. Indeed, in some more rapidly developing rural areas, school enrollments are on the rise. Between 1973-81, the state's metropolitan counties lost more than twenty percent of their public elementary and secondary school population, while rural counties as a group experienced an eighteen percent decrease.

Another significant trend which has emerged in New York State's rural counties during the past decade has been the increased reliance on local tax revenue to fund elementary and secondary education. Although personal income per pupil rose at the same rate in rural and metropolitan counties (145 percent) between 1973-82 full property value per pupil increased a whopping 206 percent in rural counties — twice as fast as the increase of full property value in metropolitan counties. Furthermore, the percentage of local contributions used to fund education also increased in rural counties. In 1973, local revenues accounted for thirty-seven percent of the total revenues spent on education in rural counties. This figure rose to forty-four percent in 1981, while remaining at fifty-nine percent in metropolitan counties during the same eight-year period.

High school graduates in rural counties are also less likely to pursue post-secondary studies than their metropolitan cousins. The current college-going rate (including two-year and four-year degree granting programs as well as other non-degree granting programs) among public high school graduates in New York State is 69.1 percent. The distinction between rural and metropolitan rates becomes even more compelling when one considers that the New York City and Long Island regions have an average 77.6 percent college-going rate while the average in rural areas ranges from fifty-five to sixty percent. Rural school districts face unnecessary hardships due to such factors as: geographic isolation; low teacher salaries and availability of quality personnel; fiscally strapped local tax bases to support educational services; lack of a uniform, statewide data base of variables affecting education in rural areas; insufficient career guidance for students; duplication of vocational program offerings; soaring property taxes; and a decline of per capita income in real dollars. In addition, in those rural communities experiencing a decline in student enrollment, community support for school systems is in danger of being severely eroded.

Consolidation of rural schools is one solution that has been proposed as an answer to the increasing financial pressure of size-limited resources. Such proposals usually lead to counterproductive controversy with little room given for friendly compromise or consideration of viable alternatives. On the one hand, the separation of a school from its constituent community causes a rural area to lose a significant portion of its local identity. In addition, as school districts are centralized, a sizeable portion of the adult population that participates in school-related activities is lost. The situation is further exacerbated by the fact that the transportation of students in sparsely populated areas is costly and administratively burdensome.

Transportation systems — most notably the school bus — have been employed to bring about school district centralization, but at a price in dollars, energy, and human sacrifice which grows more exorbitant each year. The human cost is illustrated in the lives of many rural students each day:

> The dawn is just breaking as a sleepy-eyed youth boards a school bus on a deserted county road in Delhi (population 3,347), a small rural village located on the eastern border of upstate New York's Delaware County. Following a bumpy, ten-mile ride, the student arrives at Delaware Academy, otherwise known as his "home school," where he spends one half of the school day scurrying from classroom to classroom in order to fulfill his academic requirements. Lunch is hastily ingested on a second hour-long sojourn en route to the Western Delaware BOCES Educational Center. Here, the student spends the latter portion of his day learning the intricacies of farm equipment repair as part of the Delaware-Chenango-Madison-Otsego Board of Cooperative Educational Service's (BOCES) occupational education program in agricultural mechanics. Due to the demands of time and distance, there is little opportunity to interact among teachers and peers and even less to engage in sports, recreation, or other extracurricular activities. There is only time during the harsh winter months to see the sun setting in the distant west and to board the bus once again for the long journey home.

Recent initiatives by the New York State Board of Regents, the State's highest educational governing body, have sharpened public recognition of the need to consider practical alternatives that will increase the quality and cost-effectiveness of rural education. In late March 1984, the Board unanimously approved a revised version of a statewide *Action Plan to Improve Elementary and Secondary Education in New York State*. It is the most far-reaching set of proposals aimed at strengthening education that has been instituted by the state in recent decades. Although the plan will undoubtedly improve the condition of teaching and learning in all classrooms throughout the State, it will render the attainment of a Regents diploma by students in rural schools virtually impossible.

For example, increased foreign language requirements are mandated, yet an occupational education student, such as the one described previously, may excel in advanced calculus, this student will, in all likelihood, have much difficulty in fulfilling the necessary foreign language requirements for a Regents diploma, given the restrictions of time and distance associated with travel to and from school.

The problems associated with implementation of the Regents' Action Plan in rural areas have serious implications for teaching and instruction as well. Rural school districts, with relatively small (sometimes one person) departments and/or one teacher per grade level, currently cannot establish and maintain meaningful inservice programs and systems of intensive supervisory follow-up for their staff members. For these reasons, serious consideration of modern communications networks by residents and educators as a means of enhancing the strengths and offsetting the rapidly expanding (more oppressive) costs of rural education is proposed.

How, then, can "necessarily small" rural school districts in New York State best be freed from their most pressing handicaps —geographic isolation and size-limited resources — without sacrificing their strengths in order to overcome their weaknesses?

Consolidation is a financial imperative that may, under certain circumstances, produce significant long-range benefits for some school districts. School district administrators feel money saved through reorganization can be put back into rural school districts in order to maximize the delivery of educational services. Therefore, for some rural school districts, consolidation is long overdue. For others, it simply is not practical for the student or the community. Another alternative is to seek increases in the number of teachers in rural schools.

The alternative discussed here, in stark contrast to the complex and intricate consequences of school district consolidation or increased employment of teachers, is to increase the use of electronics technology available today. Modern communications networks, for example, can free rural schools of their geographic constraints and form the vehicle for rural school districts to work cooperatively in order to provide students of all ages with lifelong educational opportunities with educational opportunities now experienced by

students and teachers in metropolitan areas. The basic idea is to move instruction and programs rather than students and teachers.

III. DEMONSTRATED POTENTIAL OF MODERN TELECOMMUNICATIONS TECHNOLOGY TO STRENGTHEN RURAL EDUCATION

There have been significant advances made in the use of telecommunications by several innovative school districts found elsewhere in rural America. Indeed, modern telecommunications technology is being used for educational purposes by health care institutions as well. One of the most successful and well-documented pioneering efforts in rural community-based schools has been the cooperative of eight school districts located in Trempealeau County, Wisconsin. The Western Wisconsin Communications Cooperative uses a broadband microwave telecommunications network to deliver programming and educational services to rural citizens. Another exemplary project has interconnected four neighboring school districts in southeastern Iowa. In addition, the Iowa model has been instrumental in the design of TWIT (Two-Way Instructional Television), an interactive system currently under construction in rural New York's St. Lawrence County. Medical Care Development, Inc., the health care model mentioned previously, uses a two-way television microwave system to serve as a continuing education and consultative service in Augusta, Maine. Other exciting alternatives and applications of telecommunications technology are being developed daily.

For example, once constructed and fully operational, an interactive telecommunications system will enable a teacher in an originating classroom "studio" to simultaneously instruct and interact with students in a number of other classrooms in the network schools. Thus, rural school districts, once severely constrained by the limitations of isolation, time, distance, and resources, may well be on the threshold of exciting new capabilities to deliver instruction and remain competitive with more advantaged metropolitan regions. Education techniques now possible through modern telecommunications are so sweeping and revolutionary in potential scope they are limited only by the imagination of the user.

Yet, it is critical at this stage of rapidly expanding applications and potentials to assess and design the most cost-effective state-of-the-art alternatives for rural education in New York State. A longer-term need is to explore the potential these now have for preserving and enhancing the strengths of rural schools as well as to develop stronger linkages with external educational/informational resources. For example, it is imperative to the successful long-range development of these networks that the machines used by people who want to communicate be able to talk to each other.

In order for the capabilities of modern communications electronics to be recognized, accepted more widely, and be fully utilized as viable educational alternatives in rural school systems in New York State and elsewhere, several key questions should be answered for decisionmakers:

- Can modern communications technology be a cost-effective means for delivery of quality education in rural areas? What needs should be served and how are they being addressed in the current educational environment?
- To what degree will rural schools be able to meet the *New York State Regents Action Plan* requirements through the use of modern communications technology? How does the use of modern communications technology compare with such other alternatives as school consolidation or the hiring of additional teachers?
- What kind of comprehensive state-local, public-private (sector) partnership effort is needed to meet technical, administrative, curricular, and financial requirements of modern communications applications?
- What are the critical educational, psychological, political, and administrative factors in obtaining state and local acceptance of new technology?
- What incentives and key elements must be put in place to position a self-sustaining high-energy cooperative telecommunications effort as an appropriate educational delivery approach?
- Can users (educators and students) unfamiliar with the technical and procedural aspects of communications technology use the medium effectively?
- In what ways may the local pilot project be replicated elsewhere? In what ways are its environmental considerations unique to the area?
- To what extent will the use of modern telecommunications help local rural schools become catalysts for improvement of community educational opportunities and cultural enrichment. Will the evolving technology make it possible for the schools to preserve and enhance their positions as focal points of community life and identity?

IV. THE THREE PILOT PROGRAM COUNTIES: DELAWARE, CHENANGO, AND OTSEGO

A. Socioeconomic Characteristics

The following information on the three-county BOCES region has been extracted from a 1984 study conducted for the Legislative Commission on Rural Resources by Paul R. Eberts, a Cornell University professor, entitled *Socioeconomic Trends in Rural New York State: A Data Book.*

Located on the eastern border of upstate New York's southern tier, *Delaware County* (population 46,824) is heavily rural with 75.3 percent of its residents living in places of less than 2,500 people. Between 1970 and 1980 Delaware Country gained approximately 2,100 people, including a net total of

over 2,400 adults between twenty-one and sixty-five years of age and 2,500 households. Moreover, the number of jobs held by its inhabitants grew by over 2,000 during this same ten-year period. Delaware County's unemployment rate was eight percent during 1980, about average among other upstate counties, while its poverty rate of sixteen percent was comparatively higher than its rural counterparts.

Located just north of Broome County and Binghamton, *Chenango County* (population 49,344) is also predominately rural with 83.6 percent of its people residing in places of less than 2,500 people. Between 1970 and 1980, Chenango County grew by approximately 3,000 residents, including a net gain of over 3,500 adults in the twenty-one to sixty-five year old age group and 3,000 households. In addition, between 1970 and 1980, the number of jobs held by its inhabitants grew by roughly 3,000. In 1980, Chenango County's unemployment rate was seven percent, below the average of other similar upstate counties, while its poverty rate of fourteen percent was average when contrasted with comparable rural upstate counties.

Located halfway between Albany and Binghamton on Interstate 88, *Otsego County* (population 59,075) is predominately rural with 74.7 percent of its people residing in communities of less than 2,500 residents. Between 1970 and 1980, Otsego County grew by 2,900 people, including 3,200 adults in the twenty-one to sixty-five year old age group and 2,500 households. Additionally, the number of jobs held by Otsego County residents increased by 2,700 during the same ten-year period. In 1980, the county experienced an unemployment rate of eight percent, about the average for other similar upstate counties. In addition, the poverty rate of fifteen percent was slightly above average for comparable rural counties.

In sum, the three rural counties described above represent an ideal setting for the design and construction of a telecommunications network. Not only are they among the most geographically removed areas found in New York State, but the high level of enthusiasm for and commitment to the project which already exist in the target communities, make the long-range applications of the network seem infinite. For example, the Delaware-Chenango BOCES will explore the opportunities to build on previous telecommunications projects as well as to identity the most effective ways to translate community support and involvement into realizable project goals. In doing so, a working partnership will be formed between BOCES and such entities as libraries, private corporations, human service agencies, health care facilities, volunteer organizations and the like in a unique, innovative and unprecedented venture worthy of federal funding.

B. State Program Sponsors: The New York State Education Department and State Legislative Commission on Rural Resources

The New York State Education Department is the coordinating agency for all educational endeavors in the state. It is the administrative arm of the State

Board of Regents, the State policy supervising body for education. Among its primary responsibilities are the administration and supervision of: (a) elementary, secondary, and continuing education; (b) higher and professional education; (c) cultural education, including libraries; and (d) vocational rehabilitation. Its Center for Learning Technology has been actively involved in the telecommunications field.

The New York State Legislative Commission on Rural Resources is a bipartisan legislative body comprised of ten elected legislators (five Senators and five Assemblymen). Its primary purpose is to promote a state-level focus and avenue for rural affairs policy and program development in New York State. It provides state elected and appointed officials with a unique capability and perspective from which to anticipate and approach large-scale problems and opportunities in the state's rural areas. It seeks to amplify the efforts of others who are interested in such policy areas as: agriculture, business, economic development, and employment; education; local government and management; environment, land use, and natural resources; transportation; housing, community facilities and renewal; health care; and human services and community life.

C. Private Sector Program Sponsor: AT&T Communications, Inc.

AT&T Communications, Inc. is a leader in the teletraining field. It has experimented with the medium and is now actively using it to train employees within its own organization in a wide range of disciplines, including technical fields. The company has also provided support and consultation to a number of corporations and educational institutions for their teletraining applications. In addition, AT&T Communications has a working knowledge of such technical aspects of the telecommunications field as microwave, satellite and network systems. Of great importance to the pilot program's success will be access to the depth and breadth of resources and expertise found in AT&T, including Bell Laboratories and its manufacturing arm, AT&T Technologies.

D. Local Program Sponsor: Delaware-Chenango-Madison-Otsego Board of Cooperative Educational Services (for eighteen local rural school districts)

The Delaware-Chenango-Madison-Otsego Board of Cooperative Educational Services, one of forty-three BOCES in New York State, is a multi-county state-local educational agency designed to serve a cluster of local school districts in a three-county area. Among its primary responsibilities are the administration and operation of: (a) occupational education centers for career-bound teenagers; (b) programs of outdoor and performing arts education, computer assisted instruction, and cultural and academic enrichment; (c) networks of skilled itinerant teachers in such special subject areas as remedial reading; (d) special education for the handicapped; and (e) educational/instructional cooperative for centralized film libraries, a school library

network, and instructional media centers; and (f) training programs for instructional and non-instructional personnel and adult education.

Additionally, there is at present a proposal being submitted to New York State for a Teacher Resource Center to be established at the Delaware-Chenango BOCES. This proposal and the proposed telecommunications proposal will dovetail very well if both are granted. The teacher center will assess the inservice needs of our area and then in conjunction with State University of Oneonta personnel will provide resources to fulfill those needs. The interactive telecommunications capability will more readily reach teachers in the remote areas of our BOCES.

The Delaware-Chenango BOCES serves eighteen school districts with a total population of approximately 17,900 students and 1,270 educators within a 2,000 square mile radius (see Attachment A). In addition, there are three postsecondary institutions located within its boundaries. The BOCES operates two educational centers: the Chenango Area Center near Norwich, which serves nine school districts in Chenango, Madison, and Otsego Counties; and the Western Delaware Area Center, located near Masonville, which serves the remaining nine school districts in Delaware, Chenango, and Otsego Counties. Courses offered at the centers are primarily designed to afford students basic entry-level occupational skills. In addition, the BOCES' coordination of such educational tools as itinerant teachers and pre-recorded videotapes have had a positive effect on remote distance learning in the rural Delaware-Chenango region. The availability of special education programs by the two BOCES centers have enabled them to better serve the needs of special populations. Some students, upon graduation, opt to further their technical training at two- and four-year postsecondary institutions. The majority of BOCES students are successful in seeking gainful employment immediately following graduation, with the assistance of the BOCES career placement service.

The Delaware-Chenango BOCES is an ideal organization to coordinate the study and operation of a local communications technology consortium for a variety of reasons: (a) its broad mandate to serve as an educational cooperative in helping local school districts and the State meet their basic constitutional responsibilities for educating youth and adults; (b) the already-existing administrative apparatus which forms the foundation for BOCES outreach services will greatly facilitate the technical coordination of a telecommunications system, while also ensuring quality, relevance, credibility, and accountability for the many intangible, humanistic aspects of implementing and managing the system; (c) BOCES possesses the necessary expertise to effectively guide the project from the incubator phase to the implementation of a fully-operational telecommunications system; and (d) some of the time-consuming and costly groundwork for a communications system has *already* been laid by the BOCES and the community it serves.

In 1974 the Delaware-Chenango BOCES was one of ten BOCES across the

southern tier of New York State to be included in a unique project to provide televised materials to all schools in the area. As a result of the project, funded by the Appalachian Regional Commission and the State of New York, the Delaware-Chenango BOCES currently owns and operates over 100 three-quarter inch videotape recorders and players (soon to be replaced by half inch video equipment), over 300 television receivers, monitor/receivers, and hundreds of television stands. In addition, BOCES now houses over 3,500 different video programs on over 9,200 tapes. A portion of the ARC grant has been encumbered by the BOCES to obtain the necessary engineering studies and land easements for a microwave system's tower placements. More importantly, BOCES has secured the cooperation and expertise of WSKG, a Binghamton-based public television station for the technical design and operation of a telecommunications system.

V. OBJECTIVES OF THE STATE-LOCAL EDUCATIONAL TELECOMMUNICATIONS PILOT PROGRAM

A. Short Term Objectives (One-Two Years)

The initial two-year objectives will be to:

- Establish an on-going state-local process for assessment and implementation of ways to strengthen rural education through evaluation and testing of such strategies as telecommunications, school consolidation, additional teaching/support staff. This process is to include the creation of a cooperative school-community network of interested citizens and educational providers.
- Develop an overall planning prospectus which assesses feasible alternatives that will lead to the strengthening of educational offerings in the pilot program region. The use of modern educational telecommunications capabilities will be among the principal options considered. These options will include: one-way/two-way audio and graphics; two-way audio with graphics; one-way video; or mixes of them.
- Inasmuch as two-way television instruction requires more lead time and capital investment, a multi-district trial test will be designed and conducted during the 1985 spring semester using limited telecommunications applications to teach secondary students. The results of the trial will be assessed. An implementation plan will be developed for the fall of 1985 to include additional courses and schools. If further expansion is not feasible, the limited pilot will be continued, after any required modifications, during the 1985-86 school year.
- Establish a state-level mechanism by which the cost-effective use of any federal and state funds in related applications of this project and any others can be monitored and assessed. In addition, this mechanism will provide a means for information sharing, learning, and promotion of

successful project elements in other localities. Of special importance will be the identification of elements, environmental conditions, and incentives required in order to replicate outcomes in other locations. It is expected a critical issue in the successful long-range development of educational telecommunications systems statewide will be to establish compatibility between communications equipment and networks. This will include obtaining the support of related state-level agencies and private interests in the establishment of standards in the early stages of system development.

- Assess the degree to which *Regents Action Plan* requirements can be met through the use of telecommunications compared to other major options such as school consolidation.

B. Longer Term Objectives (Three-Five Years)

The longer term objectives of the network include the following:

- Build an electronic educational network between the schools, educational/informational resources, and rural users, both locally and with the wider world. Vital to the success of this endeavor will be the development of the standard for a remote educational delivery system.
- Assess such school administrative applications of telecommunications as record management, library development, and information sharing.
- Assess the utilization of telecommunications in advanced training through linkages with colleges and other educational institutions.
- Plan and implement successful elements of the pilot program in other rural schools and communities.
- Assess the utilization of telecommunications for job retraining and continuing education in rural communities.

Such a system should be sufficiently open-ended so that it will help redefine parameters critical to state and community infrastructure development. For example, a possible long-range application of the telecommunications network is its potential to connect rural schools with their neighboring communities through public library access points. Modern communications networks promise to interconnect rural communities much as the interstate highway system has done for metropolitan centers. The project sponsors are ever-mindful of the need to remain receptive to the changing dynamics of communications technology, education/information networks, and community needs in realizing this objective.

Regardless of the ultimate configuration of the three-county educational communications network, a degree of flexibility must be incorporated into the system from the very outset. Not only is this flexibility critical to the attainment of educational and community related objectives, but it is the only method of assuring meaningful articulation between short- and long-range goals. For example, if communications/information linkages are to be

established with educational users/providers external to the three-county school districts, then consideration must be given to protocols so that the equipment and transport services used will compliment one another. Therefore, the design of the Delaware-Chenango system will be configured in such a way that it is capable of being expanded in function, thereby achieving additional goals beyond those of the immediate objectives of the basic system.

VI. PLANNING ACTIVITIES AND METHODOLOGIES DURING THE PROGRAM PERIOD

A. State-level Task Force on Rural Education Telecommunications

A State-level Task Force on Rural Education Telecommunications will be created. It will consist of the State Education Department and the Legislative Commission on Rural Resources, jointly, and be charged with the following responsibilities:

- Provide a statewide focus in order to create the standard required to have a self-sustaining network, coordination, cooperation, and system compatibility for the on-going development of a state-local educational telecommunications capability.
- Serve as a catalyst and clearinghouse for local initiatives in rural educational telecommunications.
- Report local needs and serve as a liaison to state/federal governmental agencies.
- Identify and encourage research, development, and strategies to support the implementation of cost-effective educational innovations in rural areas throughout the state.
- Assure adequate investigation and consideration of all cost-effective alternatives in the use of technological innovations.
- Provide a mechanism for the involvement of interested federal, state, and local constituencies.

The Task Force will have access to legislative committees, the Governor's Office, The New York State Telecommunications Advisory Council, New York State Council on Rural Education, New York State Council on the Arts, the Rural Schools Program at Cornell University, the New York State School Boards Association, the School Superintendents Association, the State Teachers Association, and private industry, including AT&T Communications, Inc. They are important communities of interest and resources, and will be consulted by the Task Force as their input becomes a factor in the pilot program.

B. Local Agency Coordinating Council

A Local Agency Coordinating Council (LAC) will be created and charged with the following responsibilities:

- Act as a catalyst in order to solidify existing community support as well as achieve community-wide credibility for the telecommunications network;
- Provide a mechanism for the involvement of important constituencies in order to assess and explore the short- and long-range objectives of the project;
- Assure adequate investigation and consideration of all cost-effective alternatives;
- Identify the schools that will participate in the initial stages of the network's development;
- Appoint and oversee a group of working subcommittees, organized by such functional areas as community resources, library resources, project administration, and curriculum development.
- Maintain liaison with and report findings and recommendations to the Board of Cooperative Educational Services and the State Task Force.

The Local Agency Coordinating Council will consist of representatives from the local community being served by the BOCES — parents, teachers, and school district administrators, and industry. The Delaware-Chenango BOCES will be represented on the LAC by its District Superintendent. The State Education Department, Legislative Commission on Rural Resources, U.S. Department of Education, and AT&T Communications will serve ex-officio and actively participate in all phases of the aforementioned activities. A chairperson will be elected from among the local members of the LAC. In addition, a Project Manager will be employed by the BOCES to serve as staff for the LAC and be responsible for keeping the advisory group abreast of all developments related to the attainment of program objectives. The LAC will be responsible for providing overall policy direction for the pilot region. The BOCES will serve as facilitator in its established role of providing shared services requested by local school districts.

It is anticipated the Council members will conduct appropriate on-site visits of applications in the region and elsewhere in order to witness the operation of educational communications systems. Such visits will be essential in order to assess the most cost-effective technological configuration of a telecommunications network.

C. Activities and Methodologies

The LAC will use the following methodologies in order to accomplish their short-and long-range objectives during the project period:

1. *Determine and assess the required design configuration of an educational telecommunications network.* The rationale for such a telecommunications network is made meaningful only when the various options available to the eighteen school districts of the Delaware-Chenango BOCES are carefully weighed in their efforts to overcome the geophysical, distance, transportation, and cost barriers which often hinder them in their efforts to provide quality educational programs. The following elements will be included in the LAC's assessment:

   a. *The Case for the Application of Telecommunications Technology to the Rural Eductional Setting:* The LAC will evaluate the applicability of telecommunications technology to elementary and secondary education in the Delaware-Chenango BOCES region in terms of overall performance impact on students and teachers as well as in light of such delivery questions as timeliness, consistency, constrained resources, and the dispersion of the target audience.

   b. *Program Characteristics:* The LAC will determine which student and teacher educational skills and objectives will best be enhanced by the utilization of a telecommunications network (*i.e.*, cognitive, affective, or perceptual/motor). In addition, the LAC will explore the instructional methods and strategies required to use the telecommunications network to its full potential.

   c. *Course Modifications:* The LAC will assess the most cost-effective means of using the telecommunications delivery system, such as program length (hours per day and number of days per week the system will be in operation), modular construction, instructional methods, and visual supports (such as slides and hand-outs).

   d. *Instructor Skills:* The LAC will identify all of the qualities necessary for effective face-to-face classroom instruction and then determine how best to incorporate them into the electronic classroom. Such variables as vocal techniques, questioning techniques, and ways to stimulate class interaction will be evaluated and explored.

   e. *Instructional Environment: Room Design and Ergonomics:* The LAC will assess the "ideal" classroom environment for the operation of a telecommunications network in terms of site selection, equipment, room design, and layout. Such variables as noise level, accessibility, lighting, and ventilation will be considered in the determination of appropriate classroom sites. The determination of a suitable room design will be contingent upon the desired technology used in each classroom, such as audio, graphics, video, or any combination thereof.

f. Administrative Considerations: The LAC will identify the administrative considerations that are essential to all planning and development phases as well as ongoing management and assessment of the network. Such considerations will include the maintenance and operation of technology and equipment, materials, appropriate personnel, coordination efforts, and evaluation of the telecommunications network.

g. Instructional Formats: The LAC will assess and identify the format the classes will adopt, *i.e.*, two-way video, one-way video with two-way audio and graphics, two-way audio and graphics with video component. Combinations of formats will also be considered.

h. Transport Services: The LAC will initially determine the desired "message" to be transmitted via the telecommunications system (audio, video, or graphics) in each classroom setting. Once a decision is reached, the LAC will assess the most cost-effective medium or combination of mediums (*i.e.*, cable, telephone, microwave radio, or communications satellite) to transport such messages to each target audience. A brief overview of the relative advantages and disadvantages of the three mediums appears below:

Cable System — Cable technology is essentially a transmission medium. It is like a highway, somewhat akin to a "toll road" for transporting voice, video, and data transmission. In addition, cable is part of an evolving telecommunications milieu that includes: computers (such as minis, micros, and mainframes); changes in telephone rate and service structures; and automated office equipment. The LAC will examine the possibilities for expanding the existing school cable systems technology. All eighteen school districts and the BOCES are tied to cable systems and are wired internally for room-to-room communication.

Telephone System — With the advent of recent technological breakthroughs in the telecommunications field as well as the deregulation of American Telephone and Telegraph (AT&T), the telephone industry has undergone profound changes. Today, a "telephone" has become much more than a traditional voice communications instrument. A "telephone" also includes the support network of cables, switches, terminals, and computers that sustain audio communication instruments. The LAC will explore the various audiographic applications of telephone systems, such as teleconferencing and teletraining as they relate to the total telecommunications system.

Communications Satellite — According to the International City Managers Association, communications satellites will grow in numbers and in the range of capabilities and services they provide to

users as America enters the twenty-first century. The LAC will examine the benefits of educational broadcasting via satellite with regard to the cost and regulatory factors that currently pervade the industry. Such factors of the satellite system as technological configuration, distance sensitivity, and cost will be closely scrutinized. For example, communications satellites may have an important impact on future long-distance telephone rates and usages since satellite relays can sometimes provide less costly long-distance telephone links than microwave connections. Furthermore, a satellite system is not limited by line-of-sight (the straight path by which radio frequency travels) and therefore is capable of reaching those people who are not within microwave range.

Microwave System — Microwave is a special radio frequency set aside by the Federal Communications Commission for closed communications. A fully developed microwave system could, in effect, turn each rural school into a miniature broadcast studio capable of sending a two-way, high quality color picture, audio information, and/or computer data transmission. The LAC will assess the various cost/benefit implications of microwave technology as they relate to an entire telecommunications network. For example, microwave has traditionally proven versatile as well as inexpensive to operate and maintain once installed. However, a distinct disadvantage of a microwave system is the fact that it is complex to design and extremely expensive to capitalize. In addition, microwave technology is only useful where line-of-sight transmitting can be achieved. This is because radio frequency travels a straight path through the air and is rendered useless where mountains, hills, or other obstructions may block the transmission path.

i. Telecommunications "Package" — The essence of the Local Agency Coordinating Council's proposed task is to identify and assess the aforementioned components that would pave the way for the introduction of the most cost-effective, responsive, state-of-the-art telecommunications *network*. Thus, the type of telecommunications technology that is utilized in each instance will be relevant to individual short- and long-term objectives. In this way, a variety of technologies will be integrated into the total network according to the LAC's determination of each technology's most cost-effective application.

2. Assess the comparative cost-effectiveness and feasibility of alternative strategies: Such strategies will include: (a) school consolidation; (b) increased levels of state and local funding to hire additional teachers and obtain necessary instructional support: and (c) obtain partial improvement and expansion of curriculum and instruction through more modest proposals.

3. Address the need to foster closer ties between rural school districts: It

has been well documented that school districts, particularly school district administrators, are a critical factor in the adoption of innovations in education. While a high level of support and enthusiasm for the interactive telecommunications project already exists among the Delaware-Chenango BOCES' constituent school districts, the Coordinating Council will predetermine and assess the level of desired cooperation between the various actors and organizations involved in the project. In addition, the LAC and its subcommittees will be used to determine the best possible configuration of teachers, course content, concurrent schedules, and time of day and week particular programs will be broadcast.

4. *Identify alternative delivery systems for community educational services:* In addition to improving the quality of elementary and secondary educational instruction, the inherent flexibility of the telecommunications network will greatly facilitate numerous community applications in the rural Delaware-Chenango region. The factors surrounding alternative delivery systems for community-related services, a long-range goal of the system, will be continually reassessed by the LAC during the project period. A myriad of potential applications, such as the use of locally originated community programs for hospitals, nursing homes, senior citizen centers and the general public, as well as continuing education and college-credit offerings beamed from the State University Agricultural and Technical College at Delhi, the State University College at Oneonta, and elsewhere, will be explored.

VII. CRITERIA FOR THE ASSESSMENT OF EDUCATIONAL ALTERNATIVES FOR RURAL SCHOOLS

The following criteria will be used in the assessment of such educational alternatives as telcommunications, school district consolidation, and the hiring of additional faculty:

- Flexibility;
- User friendly (ease of use) and other motivational advantages;
- Cost (inexpensive);
- Maximize capability of schools to deliver instruction/counseling;
- Ability to store and access information in large quantities, quickly;
- Increase accessibility to rural residents;
- Maximize community/user participation and applications of instruction;
- Maximize networking, information sharing, and involvement;
- Identify and assess any unanticipated outcomes or uncertainties;
- Capacity to be self-sustaining and evolutionary/adaptable;
- System integrity, compatibility — both locally and externally.

VIII. PRODUCTS AND OUTCOMES

A comprehensive method of step-by-step documentation and analysis of the telecommunications project during the pilot program will be reported in order to assess the process required to establish a successful planning program. From the outset, the evaluation process will incorporate a pre- and post-project attitudinal survey of the various target groups, school philosophies, specific acceptance of the system, and other tangible outcomes of the system's applications. This information will serve as a planning base for short- and long-term developments and applications of the system as well as provide meaningful data for its ongoing management and operation. In addition this information will be critical to other policymakers in the State in their efforts to adapt desirable elements of the process. Moreover, it will indicate the extent to which current legislation is supportive or perhaps needs modification.

Short Term (One-Two Years)
Products:

- *Cooperative School-Community Educational Telecommunications Network* — October 1, 1984
  A network of community interests in educational telecommunications will be promoted through formation of the Local Area Coordinating Council and its working subcommittees. This will be an on-going council function and include such community interests as faculty, administrators, local college personnel, library staff, state and federal representatives, and human services providers and users. A pre-assessment report will be issued to the BOCES Board and State Task Force and will include an attitudinal-knowledge inventory of vital interests and needs.
- *Planning Prospectus* — January 1, 1985
  The planning prospectus will present the preliminary assessment of feasible alternatives together with the design of a trial test of a telecommunications application during the Spring '85 school term, and an evaluation design for the entire laboratory program in the study region.
- *Trial Test of Telecommunications Application* — Spring 1985
  The trial test will aim to provide experience in the use of educational telecommunications so that clinical data on such outside elements as delivery, program characteristics, course modification, instructional environment, and psychological/motivational factors can be obtained for use by state/local participants. It will be important to the long-range success of the program to get broad representative participation in the trial test.
- *Assessment of Trial Test* — July 15, 1985
  Determine if planning goals have been met in the trial test. Emphasis will be placed on assessing the cost-effectiveness of the network in

enhancing student learning. Make a preliminary determination of its usefulness and adaptability to a statewide system. A copy of the assessment report will be submitted to the BOCES Board, State Task Force, Program Sponsors, and participants.

- *Implementation Plan* — August 1, 1985
  An implementation plan will be developed for expansion of the initial trial test to other school districts and course applications. The plan's ultimate design should be greatly influenced by what is learned from the initial limited trial test during the spring of 1985.
- *Interim Project Evaluation Report* — September 1, 1986
  An interim project evaluation report will be issued by the State Task Force to the New York State Legislature, state and federal departments of education, Local Advisory Coordinating Council, and New York State Legislative Commission on Rural Resources. The report will include findings and a post-assessment submitted by the Local Advisory Council and other participants.
- *Community Education Planning Prospectus* — September 1, 1986
  The community education planning prospectus will present an assessment of feasible alternatives for increased community-school interaction through the use of educational telecommunications. A trial test will be designed for the electronic networking of school with such community agencies as libraries and higher education institutions, and for uses such as job-retraining and continuing education in the home-school-work environment.

Outcomes:

- Determine educational needs that can be served cost effectively through state-of-the-art educational telecommunications.
- Establish the viability of telecommunications technology in meeting *Regents Action Plan* requirements as compared to such other alternatives as school consolidation.
- An on-going comprehensive state-local partnership effort will be established to successfully address technical, administrative, curricular, and financial requirements of educational telecommunications applications. Ways to resolve critical educational, psychological, political, and administrative issues will be developed.
- Strategies will be developed so that users unfamiliar with the technical and procedural aspects of educational telecommunications will use the medium effectively.
- Successful elements of the local pilot program that can be replicated elsewhere, will be determined in addition to those that are environmentally constrained. Pitfalls and mistakes that can be avoided will also be identified.

- State officials will plan for and promote successful replication of the pilot, with any appropriate modifications so a statewide delivery system will be enabled.

Longer-Range (Three-Five Years)
Products:

- *Community-Education Implementation Plan* — January 1, 1987
  The community-education implementation plan will be developed for linkage of the schools with such community agencies as libraries and post-secondary institutions and industry education programs. Plans and priorities will be established to phase in appropriate educational telecommunications applications in the pilot region.
- *Comprehensive Evaluation Report* — January 1, 1989
  A comprehensive evaluation report of the pilot program will be prepared and issued by the State Task Force with an eye toward its significance for the local region and other rural areas of the state. The project will be compared with any others felt relevant and useful from a federal-state-local-private sector perspective. Recommendations for future action by federal, state, and local agencies will be made.

Outcomes:

- The use of a telecommunications network will promote a degree of flexibility in educational performance standards where these have conflicted with vocational career paths in the Delaware-Chenango BOCES district. In addition the system will encourage students in rural school districts to choose a career path instead of choosing either vocational *or* college preparation.
- Such activities as staff interaction between schools, administrative planning and cooperation, sharing material resources, and teaching and learning experiences, will have a significant impact upon the basic instructional and administrative systems of each school district. The staff use of the telecommunications network within their respective interest and competency areas will inject an intangible element of motivation, attitudinal development, and increased professionalism which will, in turn, have a positive effect on the teaching and learning processes.
- A rural telecommunications network will be used to monitor student progress and provide options for further, individualized study. For example, a rural information network will reduce administrative paperwork. School administrators are often burdened with reporting information to state and federal agencies on a variety of subjects, including student and teacher personnel data, attendance data, and financial reports. A centralized computer storage and retrieval facility is normally available to school administrators in the Delaware-Chenango BOCES

region but telephone line costs prohibit its use for many of the districts. Moreover, enhancement of the data base of factors affecting rural education will be greatly facilitated by this system and shared among users in the service delivery area and elsewhere.

- Once the appropriate technology has been understood and mastered, telecommunications networks will be shown to be the most "user friendly" of all recent technological innovations. Since the educational instruction using this technology is a relatively new concept, technical assistance provided through the planning grant will help to guide the teacher training and course development process. However, orientation toward user operation should be an important consideration during the planning phase in order to avoid the personnel intensive costs of technicians to operate the system. In addition, a user-oriented system will alleviate problems associated with lack of community understanding as to the capabilities of telecommunications technology.
- The extent to which the use of state-of-the-art educational telecommunications positions rural schools as catalysts for strengthened community-educational opportunities and cultural enrichment will be measured.
- The extent to which small rural schools can preserve and enhance their positions as focal points of community life and identity through the use of educational telecommunications will be measured.

IX. BUDGET: Object and Source of Funds

	Year 1				Years 2-5			
	Initial Planning Test				Implementation/ Evaluation			
Source of Funds:	F	S	L	P	F	S	L	P
Objects of Expense								
PROJECT MANAGER (with overhead)	X					X	X	
TECHNICAL SERVICES		X		X		X		X
• Educational								
• Legal								
• Telecommunications								
TRAVEL		X					X	
• Local Pilot Coordination Activities								
• On-site Visits								
PRINTING			X				X	
• Materials								
• Reports								
COMMUNICATIONS			X				X	
• Telephone and Mail - Coordination Activities								
EQUIPMENT/ERGONOMICS	X		X			X	X	
• Classroom Studio								
• Teletraining Equipment								
TRANSPORT SERVICES	X					X	X	
• Instruction								
• Administration								
• Information Sharing								
WORKSHOPS, INSERVICE TRAINING			X	X		X	X	
• Faculty, Administration								
• Students								
• Community Agencies								
OTHER MISCELLANEOUS			X				X	
• Resource Materials								
• Contingencies								
• Office Space, Equipment, and Secretarial Services								

Source of Funds: F - Federal S - State L - Local P - Private

N.B. Funding levels and supporting narrative are presented in Section X. These are given for Year 1 only, but will be developed each year as part of the annual planning and budgetary process for succeeding years of the pilot program.

X. BUDGET NARRATIVE (and Expected Funding Levels)

PLANNING GRANT: Year 1

FEDERAL CONTRIBUTION: U.S. Department of Education

Object of Expense:

A. *Project Manager* (with overhead)		$25,000
Fringe Benefits		10,000
	Subtotal	$35,000

Upon notification of grant acceptance, the Delaware-Chenango BOCES Board of Education will recruit a project manager who will facilitate all activities and responsibilities of the Local Advisory Council (LAC). The individual selected to serve in this capacity will have an extensive working knowledge and experience in educational telecommunications. In addition, he/she will be capable of working effectively with local school personnel. The project manager will work full time for the duration of the planning grant (twelve months).

B. *Transport Services* (five courses)		
	Subtotal	$ 9,250

The trial test conducted during the Spring 1985 semester will include up to eight courses and/or sites. The cost of transport services to link these sites is anticipated to be $9,250 for the entire semester.

C. *Equipment Rental* (five classrooms)		
	Subtotal	$ 6,250

Teleconference equipment is required for each classroom "studio." Up to five classroom studios will be equipped with omni-directional conference sets, telewriters and associated equipment (*e.g.*, modems). Television monitors are currently available in each of the BOCES school districts. The grantee is seeking partial federal support to defray expenses associated with the rental of this equipment from a suitable vendor during the trial period. The balance of this item will be generated from state sources.

FEDERAL SHARE	**TOTAL**	**$50,500**

STATE CONTRIBUTIONS: New York State Education Department

A. *Equipment Rental*
(five classrooms)

Subtotal $ 6,250

Teleconferencing equipment is required for each classroom "studio." Up to five classroom studios will be equipped with omni-directional conference sets, telewriters and associated equipment (*e.g.*,modems). Television monitors are currently available in each of the BOCES school districts. The grantee is seeking partial federal support to defray expenses associated with the rental of this equipment from a suitable vendor during the trial period. The balance of this item will be generated from federal sources.

B. *Technical Services*
- Educational Support

Subtotal $ 1,500

It is anticipated the New York State Education Department will provide fifteen days of educational consulting services for the Local Advisory Council (LAC) at $150 per diem.

C. *Travel*
- Local Pilot Coordination Activities and

Subtotal $ 2,500

It is expected the Project Manager will be required to travel to the school districts involved in the pilot phase of the project in terms of facilitating and coordinating in his role as project liaison to the Local Area Coordinating Council (LAC).

NEW YORK STATE EDUCATION DEPARTMENT SHARE

TOTAL $10,250

STATE CONTRIBUTIONS: New York State Legislative Commission on Rural Resources

Object of Expense

A. *Technical Services*
- Legal Support

Subtotal $ 4,000

It is expected legal services will be required for ten days at $400 per diem.

B. *Travel*
- On-site Visits

Subtotal $3,000

This budget item reflects the need for on-site visits of model projects in other states/localities by the Local Agency Coordinating Council (LAC) members without access to travel funds. The visits will provide useful experimental information for fulfilling their role on the Coordinating Council's subcommittees (*e.g.*, Iowa, Wisconsin, AT&T, etc.). The balance of this item will be generated from other state sources.

C. *Workshops, Inservice Training*
- Faculty
- Students
- Community Agencies

Subtotal $ 1,500

It is anticipated there will be eight on-site inservice training seminars for school district personnel, students, and community representatives involved in the project. The $1,500 is partial support to defray travel expenses of workshop participants. The balance of this item will be generated from private sources.

NEW YORK STATE LEGISLATIVE COMMISSION ON RURAL RESOURCES **TOTAL $ 8,500**

LOCAL CONTRIBUTION: Delaware-Chenango BOCES

Object of Expense

A. *Printing*
- Materials and Reports

Subtotal $ 4,000

The local project sponsor will contribute to all printing and related costs associated with local responsibilities and activities of the pilot program. It is expected a comprehensive Planning Prospectus will be produced by January 1, 1985 and an implementation plan will be produced August 1, 1985. The costs identified with this item include word processing time and duplication.

B. *Classroom Ergonomics*
(five classrooms)

Subtotal $ 2,500

Each participating school will prepare a classroom studio with appropriate ergonomic considerations. The cost may range from as little as zero up to $500 per classroom, depending upon the level of acoustical development required to meet desired objectives.

C. *Communications*
- Telephone and Mail
- Coordination Activities

Subtotal $ 2,000

This item covers all communication and coordination activities that will be required of the local project sponsor during the first year phase of the program.

D. *Other Miscellaneous*
- Resource Materials
- Contingencies
- Office Space and Equipment

Subtotal $ 4,000

The local project sponsor will provide program materials for all Local Advisory Council (LAC) members and the working subcommittees that will be pursuing methodological design activities during the pilot period. In addition, the grantee will set aside and provide office space, appropriate support equipment, and secretarial services required by the project manager.

LOCAL SHARE **TOTAL $11,500**

PRIVATE CONTRIBUTION: AT&T Communications, Inc.

Object of Expense

A. Technical Services
- Engineering

Subtotal $13,500

The grantee has received preliminary commitment from AT&T Communications, Inc. to provide technical support services related to engineering and alternative telecommunications technology to be investigated by the Local Advisory Council (LAC). AT&T will also provide related expertise in the use of teleconferencing techniques.

B. *Workshops, Inservice Training*
- Faculty, Administration
- Students
- Community Agencies

Subtotal $ 9,500

It is anticipated there will be eight on-site inservice training workshops for school district personnel, students, and community representatives involved in the project. The balance of the funds for this item will be provided by a State source.

PRIVATE SHARE **TOTAL $23,000**

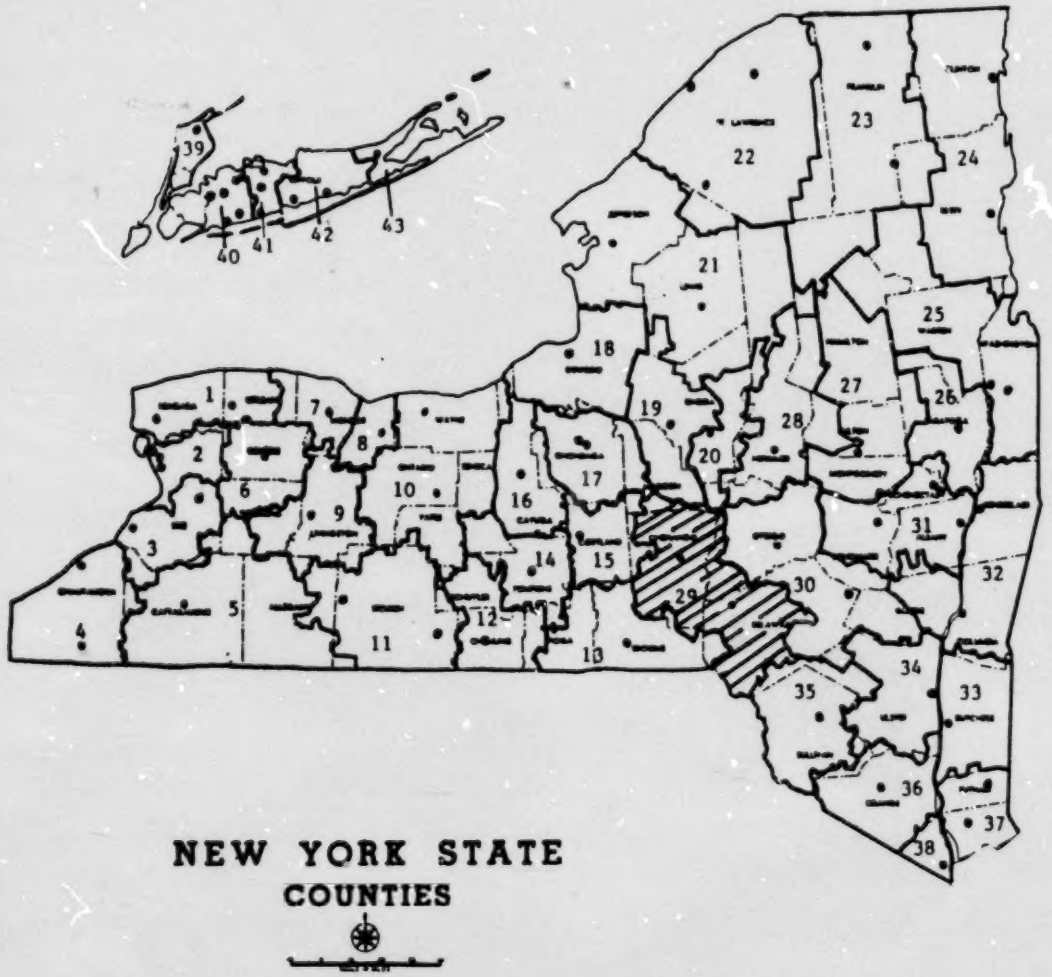
BUDGET SUMMARY: PLANNING GRANT YEAR 1

Source	*Share*
FEDERAL	
• U.S. Department of Education	$50,500
STATE	
• New York State Education Department	10,250
• New York State Legislative Commission on Rural Resources	8,500
LOCAL	
• Delaware-Chenango BOCES	9,000
• Participating School Districts	2,500
PRIVATE	
• AT&T Communications, Inc.	23,000
TOTAL	**$103,750**

ATTACHMENT A: Inventory of Students and Faculty 1983-1984
Delaware-Chenango Board of Cooperative Educational Services

School District	Students K-6	Students 7-12	Faculty K-6	Faculty 7-12	Student Total	Faculty Total
Afton	343	484	26	35	827	61
Bainbridge-Guilford	521	499	35	45	1,020	80
Delhi	652	578	45	38	1,230	83
Downsville	204	202	15	27	406	42
Franklin	185	195	12	17	380	29
Gilbertsville	138	140	8	16	278	24
Greene	710	702	50	45	1,412	95
Hancock	366	410	18	28	776	46
Mount Upton	130	132	11	12	262	23
New Berlin	345	359	19	30	704	49
Norwich	1,214	1,314	86	87	2,528	173
Otselic Valley	281	248	20	20	529	40
Oxford	578	545	42	41	1,123	83
Sherburne-Earlville	835	907	54	91	1,742	145
Sidney	779	756	50	66	1,535	116
South New Berlin	169	225	7	13	394	20
Unatego	623	661	38	36	1,284	74
Walton	787	700	45	42	1,487	87
TOTAL	**8,860**	**9,007**	**581**	**689**	**17,867**	**1,270**

ATTACHMENT B:
BOCES Districts and Occupational Education Centers
New York State 1984



1. Orleans-Niagara
2. Erie No. 1
3. Erie No. 2
4. Chautauqua
5. Cattaraugus-Erie-Wyoming
6. Genesee-Wyoming
7. Monroe No. 2
8. Monroe No. 1
9. Livingston-Steuben-Wyoming
10. Ontario-Seneca-Yates-Cayuga-Wayne
11. Steuben-Allegany
12. Schuyler-Chemung-Tioga
13. Broome-Delaware-Tioga
14. Tompkins-Seneca-Tioga
15. Cortland-Madison
16. Cayuga-Onondaga
17. Onondaga-Madison
18. Oswego
19. Madison-Oneida
20. Oneida-Madison-Herkimer
21. Jefferson-Lewis-Hamilton-Herkimer-Oneida
22. St. Lawrence
23. Franklin-Essex-Hamilton
24. Clinton-Essex-Warren-Washington
25. Washington-Warren-Hamilton-Essex
26. Saratoga-Warren
27. Hamilton-Fulton-Montgomery
28. Herkimer-Fulton-Hamilton-Otsego
29. Delaware-Chenango-Madison-Otsego
30. Greene No. 2-Delaware-Schoharie-Otsego
31. Albany-Schoharie-Schenectady
32. Rensselaer-Columbia-Greene
33. Dutchess
34. Ulster
35. Sullivan
36. Orange-Ulster
37. Putnam-Northern Westchester
38. Rockland
39. Westchester No. 2
40. Nassau
41. Suffolk No. 3
42. Suffolk No. 2
43. Suffolk No. 1

-30-

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